Intel® Rapid Storage Technology (Intel® RST) 17.2.0.1009 Production Version Release

08 March 2019

Supported Operating Systems
Microsoft Windows 10 Redstone5 x64*
Microsoft Windows Server 2016 x64 Edition*

Revision History

Date	Driver Revision	Build Number
08 March 2019	17.2.0.1009 release	1009

Notes:

1. Known Issue is defined as a potential Intel® RST issue that has been replicated internally by the Intel® RST team but has not been root caused to be an Intel® RST defect.

2. The RAID OROM & UEFI version for this release is 17.2.0.3790, the driver and user interface version is 17.2.0.1009 and Intel® Optane™ Memory and Storage Management (HSA) driver version 17.0.1011.0. For Intel® RST Premium features (e.g. RAID, Intel® Optane™ memory, CPU Attached Storage), it is required that both the Intel® RST pre-OS and Intel® RST OS driver components are updated to these latest versions. Please contact your CE for further details.

3. Intel® Optane™ Memory and Storage management App is available at Microsoft Store using the following weblink:

   https://www.microsoft.com/store/apps/9MZNG5HZWZ1T

4. **Security update:** Intel® RST 17.2.0.1009 has been updated to include SqLite DLL version 3.27.1, which includes functional and security updates. Users should update to the latest Intel® RST version. (SqLite DLL is used to maintain the database for storing file related information by the NGSA service which is used for File caching).
   - Configuration Impacted: Intel® Optane Memory volume – 32 GB and higher.

5. Intel® Optane™ Memory and Storage Management (HSA) UI is supported only in Intel® RST Premium with Intel® Optane System Acceleration (RAID Mode). It is not supported in AHCI mode. Appropriate wording notification for "Intel® Optane™ Memory and Storage Management (HSA) being installed successfully in AHCI mode" would be added in the later Intel® Optane™ Memory and Storage Management (HSA) release.

6. If RTD3 is enabled, Windows can turn off disk for very short time (e.g. 20ms). The minimum off time for some disks can be much longer (even 1s). If the disk is turned on too fast, it can hang in some undefined state. RTD3 should be disabled if the disk specification states longer minimum off time.

7. For more information on these features, please refer to RST_OEM Tech Guide 17.x-rev.1.0.4pdf or later.

Supported Hardware

Initial Intel® RST Release Version	Chipset Name	Platform / PCH / (Segment)	PCH SKU Details
17.x / 16.x	Intel® 300 Series Chipset Intel® X299 Chipset Mobile Intel® 300 Series Chipset Mobile Intel® CM246 Chipset	Desktop	Intel® H310 Chipset[A] Intel® Q370 Chipset Intel® H370 Chipset Intel® B360 Chipset[O] Intel® B365 Chipset Intel® Z370 Chipset Intel® Z390 Chipset
		High End Desktop	Intel® X299 Chipset
		Workstation	Intel® C246 Chipset
		Mobile	Intel® HM370 Chipset Intel® QM370 Chipset Intel® CM246 Chipset
N - 1			
	Intel® H110 Chipset Intel® 200 Series Chipset Intel® C236 Chipset Mobile Intel® 100 Series Chipset Mobile Intel® CM238 Chipset	Desktop	Intel® H110 Chipset[A] Intel® Q250 Chipset[O] Intel® H270 Chipset Intel® B250 Chipset[O] Intel® Z270 Chipset
		Workstation	Intel® C236 Chipset
		Mobile	Intel® HM175 Chipset Intel® QM175 Chipset Intel® CM238 Chipset

[A] This SKU of the chipset supports AHCI mode only
[O] This SKU of the chipset supports both AHCI mode and Intel® Optane™ Memory non-Premium mode (non-RAID)

Resolved Issues

ID	Title	Operating System
	Resolved Issues In 17.2.0.1009 Production Version Release	
1806823234	Disable Adaptive RTD3 for non-HDD devices	N/A
1806691071	[RstMwService]In some cases Intel® Optane™ Memory and Storage Management App gets access denied response from RPC server	N/A
1407552519	Intel® RST 17.0.0.1040 - identify namespace failing after NVMe format	N/A
1806677858	Intel® RST UI hangs after opening/closing Help 5-10 times	N/A
1306033591	Cannot create Intel® Optane™ Memory on Pentium CPU	windows.10_rs5.x64
1805797778	[Service]File migration do not start after trigger from Task scheduler during Reliability tests	windows.10_rs3.x64
1806784531	Intel® Optane™ Memory Service crashes on Pentium platform	N/A
1806514730	Intel® RST - When run S3 or shutdown, the system will black screen/BSOD with certain PCIE M.2. HMB SSD	windows.10_rs4.x64
1806518703	SLP_S0 residency can't meet 95% for monitor MS by PHM for at least 4 hours.	windows.10_rs4.x64
1806700362	BSOD DRIVER_VERIFIER_DETECTED_VIOLATION with BUGCHEK C4 is observed after enabling driver verifier with system restart	windows.10_rs5.x64
1506861122	Cannot uninstall Intel® RST driver using Programs & Features overlap in Windows	windows.10_rs5.x64
1806505528	[HSA] Cannot disable Intel® Optane™ Memory created with System disk in Intel® Optane™ Memory and Storage management UI	N/A
1806541862	[HSA] No detailed error message when trying to pin file bigger than file cache	N/A
1806766231	[MW] Ronin is marked as array member in PsiTableData	N/A

2206389333	[HSA] Incorrect "Disk data cache" value in Intel® Optane™ Memory and Storage management App	N/A
1806905722	[HSA] Intel® Optane™ Memory and Storage management App can be launched as Standard User when installed by Administrator.	N/A

Known Issues

Known Issues In 17.2.0.1009 Production Version Release		
ID	**Title**	**Operating System**
1806855776	Unit can't boot to OS and show error message "Default Boot Device Missing or Boot Failed" after disable Intel® Optane™ Memory in BIOS Intel® RST HII menu.	windows.10_rs5.x64
1806593734	Link Power Management default is disabled in Performance tab of "Intel® Optane™ Memory and Storage Management" UI	windows.10_rs5.x64
1806666551	The SUT will show "No boot device" after HW encryption on DDPE.	windows.10_rs5.x64
1604306111	Unexpected_Kernel_Mode_Trap BSOD is observed during Shrink of Disk Partition (C:) drive after enable Intel® Optane™ Memory before Restart the SUT	windows.10_rs1.x64
1806577430	3 Intel® NVME SSD in AHCI mode cannot open Intel Rapid Storage Technology	windows.10_rs5.x64
1806534491	BSOD with CS: Driver IRQL Not Less Or Equal @ Bug check D1 pointing to IASTORAC.SYS during CS cycles.	windows.10_rs5.x64
1305482762	Volume label of ODD drive remain unchanged after ejected CD/DVD disc.	windows.10_rs3.x64

Terminology

Common Terms and Acronyms	Definition
AEN	Asynchronous Event Notification
AHCI	Advanced Host Controller Interface
ATA	Advanced Technology Attachment
ATAPI	Advanced Technology Attachment Packet Interface
BIOS	Basic Input / Output System

BUS PROTOCOL GROUP	A bus protocol group represents a set of bus protocols with similar performance characteristics. Bus Protocol Groups are listed here in descending order of speed: 1- PCIe* 2- SATA
Chipset	A term used to define a collection of The PNHCI components required to make a PC function.
CSMI	OEM Common Storage Management Interface for reporting RAID configurations and SMP, SSP, STP pass through.
DEVSLP	Serial ATA Device Sleep
DMA	Direct Memory Access
DOS	Disk Operating System
DIPM	Device Initiated Power Management
Disk's Write Cache	A memory device within a hard drive, which is allocated for the temporary storage of data before that data is copied to its permanent storage location.
GB	Giga-byte = 1024^3 bytes
HDD	Hard Disk Drive
HIPM	Host Initiated Power Management
Hot Plug	A term used to describe the removal or insertion of a SATA disk while the system is powered on.
HSA	Hardware Supported App
ICH	Input / Output Controller Hub
InstantGo*	Microsoft Windows* 8.1 connected standby low-power state that features extremely low power consumption while maintaining Internet connectivity.
KB	Kilo-byte = 1024 bytes
LPM	Link Power Management
M.2	Specification for internally mounted computer expansion cards and associated connectors. It replaces the mSATA standard. Formerly known as the Next Generation Form Factor (NGFF)
MB	Mega-bytes = 1024^2 bytes
MEMORY GROUP	A memory group represents a set of backend storage media types with similar performance characteristics. Memory Groups are listed here in ascending order of speed: 1- Spindle Device (HDD) 2- NAND Spindle Hybrid Device 3- PCH SATA NAND Device (SSD) 4- PCIe* NAND Device (SSD) 5- PCIe* NAND Device (SXP)
mSATA	Computer bus interface that connects host bus adapters to mass storage devices such as hard disk drives and optical drives. Uses PCI Express Mini Card-like connector that is electrically SATA.
NAI	Notification Area Icon
NTFS	NT File System
NVC	Non-Volatile Cache

NVMe*	Non-Volatile Memory Express: Non-Volatile Memory Host Controller Interface Specification (NVMHCI), is a specification for accessing solid-state drives (SSDs) attached through the PCI Express (PCIe*) bus
OEM	Original Equipment Manufacturer
ODD	Optical Disk Drive
OROM	Option ROM
OS	Operating System
PCH	Platform Controller Hub
PCIe*	PCI Express (Peripheral Component Interconnect Express): is a high-speed serial computer expansion bus standard
Port	The point at which a SATA drive physically connects to the SATA controller.
PRD	Product Requirements Document
PUIS	Power Up In Standby - Drive feature that allows a spindle device to be powered up in standby mode without spinning the disk up.
RAID	Redundant Array of Independent Disks Matrix RAID: A configuration supporting two RAID levels by having two volumes in a single RAID array that use Intel® RST
RTD3	Runtime D3
RS2	Redstone2
SATA	Serial ATA
SIPM	Software Initiated Power Management
S.M.A.R.T.	Self-Monitoring, Analysis and Reporting Technology: an open standard for developing hard drives and software systems that automatically monitors a hard drive's health and reports potential problems.
SED	Self-Encrypting Drive
SRT	Intel® Smart Response Technology. Intel® RST's premium feature to use caching technology that enables caching of a device or volume using a faster device
SSD	Solid State Drive – non volatile memory used as storage media
SSHD	Solid-State Hybrid Drive
TB	Tera-byte = 1024^4 bytes
UEFI	UEFI pre-OS driver
UI	User Interface
VC	Validation Candidate
ZPODD	Zero Power Optical Disk Drive